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Stress-induced Biomarkers in Liver with Non-alcohol Fatty Liver Diseases and Non-alcohol Steatohepatitis

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Background

A comparative study between plasma diagnostic markers and oxidative stress-induced biomarkers localized differently in liver has not been reported in non-alcohol fatty liver (NAFLD) and non-alcoholic steatohepatitis (NASH).

Methods

Pathological observations by Hematoxylin and Eosin (HE) staining and immunostaining by specific antibodies against metallothionein (MT)-1/2 and -3, heme oxygenase -1 (HO-1), adiponectin using biopsy samples and plasma diagnostic makers were determined in 37 cases.

Results

The MT-1/2, HO-1 and adiponectin levels were all significantly reduced in the liver with NASH compared with NAFLD and control. MT-1/2 was most strongly stained in hepatocytes in the normal and NAFLD liver, while it was significantly reduced in NASH. Adiponectin was stained significantly less at blood vessel cells in NASH compared with NAFLD and controls. HO-1 was also stained significantly less in the Kupffer cells in NASH compared with NAFLD and controls. MT-3 was stained similarly among the three groups at blood vessel cells. Those biomarkers trended negatively with plasma liver injury biomarkers.

Conclusions

The significantly reduced expression of oxidative stress-induced biomarkers in NASH may be associated with the degree of pathological damage. In particular, MT-1/2 seemed to play the important role in hepatocytes against stress-induced damage in NASH.

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